```
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OM protein - protein search, using sw model

Run on:          March 12, 2002, 12:48:03 ; Search time 38.66 Seconds
                                            (without alignments)
                                            19.160 Million cell updates/sec

Title:           US-09-801-784-36
Perfect score:   50
Sequence:        1 PSAVALTYSP 10

Scoring table:   BLOSUM62
                 Gapop 10.0 , Gapext 0.5

Searched:        522463 seqs, 74073290 residues

 otal number of hits satisfying chosen parameters:      522463

 inimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Database :       A_Geneseq_1101:*
                 1:  /SIDS8/gcgdata/geneseq/geneseqp/AA1980.DAT:*
                 2:  /SIDS8/gcgdata/geneseq/geneseqp/AA1981.DAT:*
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                 7:  /SIDS8/gcgdata/geneseq/geneseqp/AA1986.DAT:*
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      Pred. No. is the number of results predicted by chance to have a
      score greater than or equal to the score of the result being printed,
      and is derived by analysis of the total score distribution.

                              SUMMARIES

                  %
Result          Query
  No.   Score   Match Length DB  ID                     Description
--------------------------------------------------------------------------
    1      50   100.0     10  19  AAW53301               CS4 CFA/I family s
    2      50   100.0     36  18  AAW17903               Immunogenic consen
    3      50   100.0     36  19  AAW53307               CS4-CFA/I family s
    4      50   100.0     37  18  AAW24221               Peptide fragment f
    5      50   100.0     37  18  AAW09420               Immunogenic peptid
    6      50   100.0     37  19  AAW48316               Escherichia coli f
    7      50   100.0     38  21  AAB06210               Escherichia coli c
    8      44    88.0     36  18  AAW17904               Immunogenic consen
    9      44    88.0     37  18  AAW24222               Peptide fragment f
   10      44    88.0     37  18  AAW17906               Peptide CS1 from d
   11      44    88.0    148  18  AAW17912               Peptide CS1 from d
   12      44    88.0    171  13  AAR21313               Sequence of a mal
   13      42    84.0     37  18  AAW24223               Peptide fragment f
   14      42    84.0     37  18  AAW17907               Peptide CS4 from d
   15      42    84.0    117  18  AAW17913               Peptide CS4 from d
   16      40    80.0     10  13  AAR28320               Antigenic syntheti
   17      40    80.0     37  18  AAW17905               Peptide CFA/I from
   18      40    80.0    147  18  AAW17911               Peptide CFA/I from
   19      40    80.0    170  19  AAW38341               E. coli colonisati
   20      39    78.0      8  19  AAW53297               CS4-CFA/I family s
   21      39    78.0      8  19  AAW53299               CS4 CFA/I family s
   22      39    78.0     76  22  AAM25886               Human protein sequ
   23      36    72.0      8  19  AAW53298               CS4-CFA/I family s
   24      36    72.0      8  19  AAW48315               CS4-CFA/I family s
   25      36    72.0     67  21  AAY52251               S. pyogenes yqjE p
   26      36    72.0    342  21  AAY52209               Streptococcus pyog
   27      35    70.0      8  19  AAW53300               CS4 CFA/I family s
   28      35    70.0     36  18  AAW24224               Peptide fragment f
   29      35    70.0     36  18  AAW17908               Peptide CS17 from
   30      35    70.0     40  18  AAW17914               Peptide CS17 from
   31      35    70.0     44  21  AAB29912               Human secreted pro
   32      35    70.0     51  18  AAW17915               Peptide PCF0166 tr
   33      35    70.0    204  21  AAG13082               Arabidopsis thalia
   34      35    70.0    235  21  AAG13081               Arabidopsis thalia
   35      35    70.0    277  21  AAG13080               Arabidopsis thalia
   36      35    70.0    374  21  AAY69699               Human wild type al
   37      35    70.0    386  20  AAY29535               Human lung tumour
   38      35    70.0    386  21  AAB44436               Human lung tume r
   39      35    70.0    521  21  AAB42819               Human RFX RF2'B3
   40      35    70.0    579  18  AAW08143               RHDV capsid protei
   41      34    68.0    317  21  AAG20764               Arabidopsis thalia
   42      34    68.0    346  21  AAG20763               Arabidopsis thalia
   43      34    68.0    375  21  AAG20762               Arabidopsis thalia
   44      34    68.0    541   8  AAP70433              Human atrial natri
   45      34    68.0    541  17  AAR95586               Atrial natriuretic

                              ALIGNMENTS

RESULT     1
AAW53301
ID    AAW53301 standard; peptide; 10 AA.
XX
AC    AAW53301;
XX
DT    03-JUL-1998  (first entry)
XX
DE    CS4-CFA/I family specific antibody responsive peptide #36.
XX
KW    Escherichia coli; CS4-CFA/I family; antibody; immunisation; ETEC;
KW    enterotoxigenic; immune response.
XX
OS    Synthetic.
OS    Escherichia coli.
XX
PN    WO9805348 A1.
XX
PD    12-FEB-1998.
XX
PF    01-AUG-1997;    97WO-US13476.
XX
PR    05-AUG-1996;    96US-0023145.
PR    02-AUG-1996;    96US-0023076.
XX
PA    (USSA ) US DEPT OF THE ARMY.
XX
PI    Cassels F,  Loomis Price L;
XX
DR    WPI; 1998-145348/13.
XX
PT    Peptide(s) responsive to antibodies against Escherichia coli
PT    CS4-CFA/I family proteins - are subunits of consensus peptide useful
PT    for immunisation, and consequent antibody compositions, useful in
```

```
PT   assays and treatment of infection
XX
PS   Claim 2; Page 14; 19pp; English.
XX
CC   The present sequence represents a peptide responsive to antibodies
CC   against Escherichia coli CS4-CFA/I family proteins. The peptide and
CC   compositions containing such peptides are useful for immunisation to
CC   raise antibodies to organisms producing the CS4 CFA/I family of
CC   proteins. The CS4 CFA/I family belong to the enterotoxigenic (ETEC)
CC   class of Escherichia coli, one of five classes of E. coli causing
CC   diarrhoea. ETEC are the most common class and cause high infant
CC   mortality and illness in adult travellers in developing countries. The
CC   peptides are also useful to determine whether individual animals have
CC   antibodies to ETEC E. coli. The antibody compositions can be used in
CC   assays to detect organisms bearing the CS4 CFA/I family proteins, in
CC   which a culture of organisms is contacted with the composition for
CC   sufficient time for interaction to occur, and the culture is examined
CC   to determine if a CS4 CFA/I family protein/antibody complex has formed.
CC   The antibody compositions can also be used to treat, or immunise a
[illegible]   susceptible host against, illness arising from infection with bacteria
[illegible]   bearing CS4 CFA/I family proteins, by administering a bacteria-
CC   agglutinating effective amount, optionally with an adjuvant.
XX
SQ   Sequence   10 AA;

  Query Match             100.0%;  Score 50;  DB 19;  Length 10;
  Best Local Similarity   100.0%;  Pred. No. 0.0017;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 PSAVALTYSP 10
              ||||||||||
Db          1 psavaltysp 10


RESULT   2
AAW17903
ID   AAW17903 standard; peptide; 36 AA.
XX
AC   AAW17903;
XX
DT   25 JUL 1997  (first entry)
XX
DE   Immunogenic consensus peptide against E coli CS4 CFA/I.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
[illegible]
[illegible]   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171 A1.
XX
PD   05 DEC 1996.
XX
PF   03 JUN 1996;   96WO-US08730.
XX
PR   02 JUN 1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Claim 1; Page 11; 17pp; English
XX
CC   The present sequence is a consensus sequence that was constructed
CC   from the highly conserved N-terminal region of fimbrial proteins from
CC   CFA/I, CS1, CS2, CS4, CS17 and PCF 0166, and was shown to generate
CC   antibodies against all members of the family. The consensus sequence
CC   also contains both B and T cell epitopes. It can be used to immunise
CC   against disease caused by enterotoxic E. coli of the family CS4-CFA/I.
CC   Also antibodies raised against the E. coli CS4-CFA/I family can be
CC   used as diagnostic reagents to identify antigens.
XX
SQ   Sequence   36 AA;

  Query Match             100.0%;  Score 50;  DB 18;  Length 36;
  Best Local Similarity   100.0%;  Pred. No. 0.0073;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 PSAVALTYSP 10
              ||||||||||
Db         26 psavaltysp 35


RESULT   3
AAW53367
ID   AAW53367 standard; peptide; 36 AA.
XX
AC   AAW53367;
XX
DT   03 JUL 1998  (first entry)
XX
DE   CS4 CFA/I family specific antibody responsive consensus peptide.
XX
KW   Escherichia coli; CS4 CFA/I family; antibody; immunisation; ETEC;
KW   enterotoxigenic; immune response.
XX
OS   Synthetic.
OS   Escherichia coli.
XX
PN   WO9805348 A1.
XX
PD   12-FEB-1998.
XX
PF   01 AUG 1997;   97WO-US13476.
XX
PR   05 AUG 1996;   96US-0023145.
PR   02 AUG 1996;   96US-0023076.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Cassels F,  Loomis-Price L;
XX
DR   WPI; 1998-145348/13.
XX
PT   Peptide(s) responsive to antibodies against Escherichia coli
PT   CS4-CFA/I family proteins - are subunits of consensus peptide useful
PT   for immunisation, and consequent antibody compositions, useful in
PT   assays and treatment of infection
XX
PS   Example 2; Page 6; 19pp; English.
XX
CC   The present sequence represents a peptide responsive to antibodies
CC   against Escherichia coli CS4 CFA/I family proteins. The peptide and
CC   compositions containing such peptides are useful for immunisation to
CC   raise antibodies to organisms producing the CS4 CFA/I family of
CC   proteins. The CS4-CFA/I family belong to the enterotoxigenic (ETEC)
CC   class of Escherichia coli, one of five classes of E. coli causing
CC   diarrhoea. ETEC are the most common class and cause high infant
CC   mortality and illness in adult travellers in developing countries. The
CC   peptides are also useful to determine whether individual animals have
CC   antibodies to ETEC E. coli. The antibody compositions can be used in
CC   assays to detect organisms bearing the CS4 CFA/I family proteins, in
CC   which a culture of organisms is contacted with the composition for
CC   sufficient time for interaction to occur, and the culture is examined
CC   to determine if a CS4-CFA/I family protein/antibody complex has formed.
CC   The antibody compositions can also be used to treat, or immunise a
CC   susceptible host against, illness arising from infection with bacteria
```

```
CC   bearing CS4-CFA/I family proteins, by administering a bacteria
CC   agglutinating effective amount, optionally with an adjuvant.
XX
SQ   Sequence   36 AA;

  Query Match             100.0%;  Score 50;  DB 19;  Length 36;
  Best Local Similarity   100.0%;  Pred. No. 0.0073;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
            ||||||||||
Db       26 psavaltysp 35


RESULT   4
AAW24221
ID   AAW24221 standard; peptide; 37 AA.
XX
AC   AAW24221;
[illegible]
[illegible] 17-MAR-1998  (first entry)
XX
DE   Peptide fragment from Escherichia coli CFA/I.
XX
KW   T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW   delayed-type hypersensitivity assay; vaccine development.
XX
OS   Escherichia coli.
XX
PN   WO9727462-A2.
XX
PD   31-JUL-1997.
XX
PF   27-JAN-1997;   97WO-US01084.
XX
PR   26-JAN-1996;   96US-0010679.
XX
PA   (USSA ) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI   Brix DL,  Sitz KV;
XX
DR   WPI; 1997-393814/36.
XX
PT   Peptide fragments containing antigen epitope(s) used to trace
PT   diseases - used in a delayed-type hypersensitivity assay, for in
PT   vivo mapping of human T-lymphocyte epitope(s) e.g. for diagnosis,
PT   vaccine development etc
XX
[illegible] Disclosure; Page 10; 14pp; English.
XX
CC   Peptides AAW24221-6 from Escherichia coli may be used in the method
CC   of the invention which relates to the tracing of sources of infectious
CC   diseases. The method comprises preparing a short (9-50 amino acid)
CC   peptide containing at least one non-conserved epitope of an organism,
CC   injecting a composition containing the peptide intradermally into a test
CC   subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC   injection site at intervals for induration. The method allows the
CC   T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC   humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC   and treatment design for infectious disease exposure, active autoimmune
CC   disease, allergic diseases and malignancy. It is especially useful for
CC   tracing infectious diseases e.g HIV, particularly when a sequence is
CC   present only in certain strains of an organism, and developing suitable
CC   vaccines. Vaccinated individuals can also be tested to verify protection
CC   against a particular strain. The method allows in vivo mapping of
CC   T-lymphocyte epitopes, not previously possible. The method is simpler,
CC   more rapid and more sensitive. It can also be applied in a variety of
CC   environments e.g. undeveloped regions since specialist equipment is not
CC   required.
XX
SQ   Sequence   37 AA;
```

```
  Query Match             100.0%;  Score 50;  DB 18;  Length 37;
  Best Local Similarity   100.0%;  Pred. No. 0.0075;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
            ||||||||||
Db       26 psavaltysp 35


RESULT   5
AAW09420
ID   AAW09420 standard; peptide; 37 AA.
XX
AC   AAW09420;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Immunogenic peptide against E.coli CS4 CFA/I.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
FH   Key                 Location/Qualifiers
FT   Disulfide bond      1
FT                       /note   "The cysteine residue was added to the
FT                               consensus peptide to allow bonding with
FT                               iodoacetylated albumin or toxoid, providing
FT                               conjugated proteins"
FT   Peptide             2..37
FT                       /label  Consensus_sequence
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I   and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Claim 2; Page 11; 17pp; English.
XX
CC   A consensus sequence was constructed from the highly conserved
CC   N-terminal region of fimbrial proteins from CFA/I, CS1, CS2, CS4,
CC   CS17 and PCF 0166, and was shown to generate antibodies against
CC   all members of the family. The consensus sequence also contains
CC   both B and T cell epitopes. The present sequence represents the
CC   consensus sequence with a cysteine residue at the N-terminus of
CC   the peptide to allow conjugated peptides to be produced. This allows
CC   greater increases in antigenicity when used to immunise against
CC   disease caused by enterotoxic E. coli of the family CS4-CFA/I.
CC   Also antibodies raised against the E. coli CS4 CFA/I family can be
CC   used as diagnostic reagents to identify antigens.
XX
SQ   Sequence   37 AA;

  Query Match             100.0%;  Score 50;  DB 18;  Length 37;
  Best Local Similarity   100.0%;  Pred. No. 0.0075;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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```
Qy          1 PSAVALIYSP 10
              ||||||||||
Db         27 psavaliysp 36


RESULT    6
AAW48316
ID   AAW48316 standard; peptide; 37 AA.
XX
AC   AAW48316;
XX
DT   02-JUL-1998  (first entry)
XX
DE   Escherichia coli family CS4 CFA/I immunogen consensus peptide.
XX
KW   Monoclonal antibody; agglutinate; Escherichia coli; prophylaxis;
KW   CS4 CFA/I family protein; diarrhoea.
XX
     Synthetic.
     Escherichia coli.
XX
PN   WO9805687-A1.
XX
PD   12-FEB-1998.
XX
PF   01-AUG-1997;   97WO-US13477.
XX
PR   02-AUG-1996;   96US-0023075.
XX
PA   (USSA ) US DEPT OF THE ARMY.
PA   (VIRI ) VIRION SYSTEMS INC.
XX
PI   Cassels F,  Lees A,  Schuman R;
XX
DR   WPI; 1998-145553/13.
XX
PT   Monoclonal antibody agglutinating Escherichia coli with CS4 CFA/I
PT   family protein  - is useful in assays and for treatment or
PT   prophylaxis against illness arising from infection with E. coli
PT   bearing CS4 CFA/I family proteins
XX
PS   Disclosure; Page 3; 14pp; English.
XX
CC   The present sequence represents an Escherichia coli family CS4 CFA/I
CC   immunogen consensus peptide. The present invention describes a new
CC   monoclonal antibody which binds exclusively and specifically to SAVALIYS,
     agglutinates bacteria bearing CS4-CFA/I family proteins and is produced
     by hybridoma 96 10?FEB 1H11. The monoclonal antibody can agglutinate
     members of the Escherichia coli family CSA CFA/I, since it was raised to
CC   a consensus peptide known to raise antibodies against proteins of all
CC   the CSA CFA/I family. E. coli causing diarrhoea are grouped into five
CC   classes, of which enterotoxigenic (ETEC), to which the CS4 CFA/I family
CC   belong, are the most common and pose the greatest risk to travellers.
CC   ETEC E. coli cause high infant mortality and illness in adult travellers
CC   in developing countries. The antibody is useful in assays to detect/
CC   identify organisms bearing CS4 CFA family proteins, by contacting
CC   cultures of organisms for sufficient time for interaction, and
CC   determining whether a CS4 CFA/I family protein/antibody complex has
CC   formed. It can be included in compositions with a carrier appropriate
CC   for application to bacteria-containing growth media, optionally with a
CC   tag e.g. a fluorescing agent or colorometric tag, to assist
CC   identification of the complex. It can also be included in compositions
CC   with pharmaceutically acceptable carriers, especially saline, useful for
CC   treating or prophylaxing against illness arising from infection with
CC   bacteria bearing CS4 CFA/I family proteins.
XX
SQ   Sequence   37 AA;

  Query Match             100.0%;  Score 50;  DB 19;  Length 37;
  Best Local Similarity   100.0%;  Pred. No. 0.0075;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy          1 PSAVALIYSP 10
              ||||||||||
Db         27 psavaliysp 36


RESULT    7
AAB06210
ID   AAB06210 standard; peptide; 38 AA.
XX
AC   AAB06210;
XX
DT   22-NOV-2000  (first entry)
XX
DE   Escherichia coli consensus peptide.
XX
KW   E. coli; solid phase conjugate vaccines; bacterial infection;
KW   viral infection; parasitic infection; fungal infection; rickettsiae.
XX
OS   Escherichia coli.
XX
PN   WO200025812-A2.
XX
PD   11-MAY-2000.
XX
PF   29-OCT-1999;   99WO-US25425.
XX
PR   29-OCT-1998;   98US-0106090.
XX
PA   (LEES/) LEES A.
XX
PI   Lees A;
XX
DR   WPI; 2000-365401/31.
XX
PT   Preparation of solid phase vaccine for treating viral, bacterial
PT   rickettsiae, and fungal diseases, involves adsorbing protein to solid
PT   phase adjuvant and covalently linking carbohydrate to adsorbed protein
PT
XX
PS   Example 1; Page 25; 40pp; English.
XX
CC   The present sequence is a consensus peptide sequence from Escherichia
CC   coli. It was used in the production of solid phase conjugate vaccines,
CC   which can be used to treat and produce antibodies against bacterial,
CC   viral, parasitic or fungal infections.
XX
SQ   Sequence   38 AA;

  Query Match             100.0%;  Score 50;  DB 21;  Length 38;
  Best Local Similarity   100.0%;  Pred. No. 0.0077;
  Matches   10;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 PSAVALIYSP 10
              ||||||||||
Db         27 psavaliysp 36


RESULT    8
AAW17904
ID   AAW17904 standard; peptide; 36 AA.
XX
AC   AAW17904;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Immunogenic consensus peptide 2 against E.coli CS4 CFA/I.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
```

```
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
     Disclosure; Page 3; 17pp; English.

     The present sequence is consensus peptide 2 sequence that was constructed
CC   from the highly conserved N-terminal region of fimbrial proteins from
CC   CFA/I, CS1, CS2, CS4, CS17 and PCF 0166, and was shown to generate
CC   antibodies against all members of the family. The consensus sequence
CC   also contains both B and T cell epitopes. It can be used to immunise
CC   against disease caused by enterotoxic E. coli of the family CS4-CFA/I.
CC   Also antibodies raised against the E. coli CS4-CFA/I family can be
CC   used as diagnostic reagents to identify antigens.
XX
SQ   Sequence   36 AA;


  Query Match             88.0%;  Score 44;  DB 18;  Length 36;
  Best Local Similarity   80.0%;  Pred. No. 0.11;
  Matches    8;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
            |::|||||||
Db       26 pasvaltysp 35


RESULT   9
AAW24222
ID   AAW24222 standard; peptide; 37 AA.
XX
AC   AAW24222;
XX
     17-MAR 1998  (first entry)
XX
DE   Peptide fragment from Escherichia coli CS1.
XX
KW   T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW   delayed type hypersensitivity assay; vaccine development.
XX
OS   Escherichia coli.
XX
PN   WO9727462-A2.
XX
PD   31-JUL-1997.
XX
PF   27 JAN-1997;   97WO-US01084.
XX
PR   26 JAN-1996;   96US-0010679.
XX
PA   (USSA ) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI   Brix DL,  Sitz KV;
XX
DR   WPI; 1997-393814/36.
XX
PT   Peptide fragments containing antigen epitope(s) used to trace
PT   diseases   used in a delayed-type hypersensitivity assay, for in
PT   vivo mapping of human T lymphocyte epitope(s) e.g. for diagnosis,
PT   vaccine development etc
XX
PS   Disclosure; Page 10; 14pp; English.
XX
CC   Peptides AAW24221-6 from Escherichia coli may be used in the method
CC   of the invention which relates to the tracing of sources of infectious
CC   diseases. The method comprises preparing a short (9-50 amino acid)
CC   peptide containing at least one non-conserved epitope of an organism,
CC   injecting a composition containing the peptide intradermally into a test
CC   subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC   injection site at intervals for induration. The method allows the
CC   T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC   humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC   and treatment design for infectious disease exposure, active autoimmune
CC   disease, allergic diseases and malignancy. It is especially useful for
CC   tracing infectious diseases e.g HIV, particularly when a sequence is
CC   present only in certain strains of an organism, and developing suitable
CC   vaccines. Vaccinated individuals can also be tested to verify protection
CC   against a particular strain. The method allows in vivo mapping of
CC   T-lymphocyte epitopes, not previously possible. The method is simpler,
CC   more rapid and more sensitive. It can also be applied in a variety of
CC   environments e.g. undeveloped regions since specialist equipment is not
CC   required.
XX
SQ   Sequence   37 AA;


  Query Match             88.0%;  Score 44;  DB 18;  Length 37;
  Best Local Similarity   80.0%;  Pred. No. 0.11;
  Matches    8;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
            |::.||||||
Db       26 pnsvaltysp 35


RESULT  10
AAW17906
ID   AAW17906 standard; peptide; 37 AA.
XX
AC   AAW17906;
XX
DT   25 JUL 1997  (first entry)
XX
DE   Peptide CS1 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03 JUN-1996;   96WO-US08730.
XX
PR   02 JUN 1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I   and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
```

```
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS1. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   37 AA;

  Query Match             88.0%;  Score 44;  DB 18;  Length 37;
  Best Local Similarity   80.0%;  Pred. No. 0.11;
  Matches    8;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

  y          1 PSAVALIYSP 10
               |::|||||||
            26 pnsvaltysp 35


RESULT 11
AAW17912
ID   AAW17912 standard; peptide; 148 AA.
XX
AC   AAW17912;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS1 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
     (USSA ) US DEPT OF THE ARMY.

     Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS1. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   148 AA;

  Query Match             88.0%;  Score 44;  DB 18;  Length 148;
```

```
  Best Local Similarity   80.0%;  Pred. No. 0.52;
  Matches    8;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 PSAVALIYSP 10
              |::|||||||
Db         26 pnsvaltysp 35


RESULT 12
AAR21313
ID   AAR21313 standard; Protein; 171 AA.
XX
AC   AAR21313;
XX
DT   17-MAY-1992  (first entry)
XX
DE   Sequence of a major CS1 pilin antigen of enterotoxigenic
DE   Escherichia coli encoded by coo A gene.
XX
KW   Antigen; vaccine; diarrhoea; probe.
XX
OS   Escherichia coli LM310.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..23
FT                   /label= signal
XX
PN   WO9201703-A.
XX
PD   06-FEB-1992.
XX
PF   23-JUL-1991;   91WO-US05217.
XX
PR   24-JUL-1990;   90US-0557535.
XX
PA   (UYEM ) EMORY UNIV.
XX
PI   Scott JR,  Perez-Casal J;
XX
DR   WPI; 1992-064882/08.
DR   N-PSDB; AAQ20529.
XX
PT   Major CS1 pilin antigen of enterotoxigenic Escherichia coli,
PT   with probes binding to DNA encoding the antigen, useful in
PT   diagnosis of enterotoxigenic E.coli and as vaccine
XX
PS   Example; Fig 2; 31pp; English.
XX
CC   The inventors claim a DNA sequence (AAQ20529), a vector, transformed
CC   microbe, process, a probe, a vaccine and the major CS1 pilin antigen
CC   itself.  The vector is selected from the recombinant plasmids pEU600,
CC   pEU605 and pEU452.  The host cell is E. coli K12 strain JM83.  The
CC   probe comprises the 318 bp internal HhaI digestion prod. of AAQ20529.
XX
SQ   Sequence   171 AA;

  Query Match             88.0%;  Score 44;  DB 13;  Length 171;
  Best Local Similarity   80.0%;  Pred. No. 0.62;
  Matches    8;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 PSAVALIYSP 10
              |::|||||||
Db         49 pnsvaltysp 58


RESULT 13
AAW24223
ID   AAW24223 standard; peptide; 47 AA.
XX
AC   AAW24223;
XX
DT   17-MAR-1998  (first entry)
```

```
XX
DE   Peptide fragment from Escherichia coli CS4.
XX
KW   T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW   delayed-type hypersensitivity assay; vaccine development.
XX
OS   Escherichia coli.
XX
PN   WO9727462-A2.
XX
PD   31-JUL-1997.
XX
PF   27-JAN-1997;   97WO-US01084.
XX
PR   26-JAN-1996;   96US-0010679.
XX
PA   (USSA ) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI   Brix DL,  Sitz KV;
XX
DR   WPI; 1997-393814/36.
XX
PT   Peptide fragments containing antigen epitope(s) used to trace
PT   diseases - used in a delayed-type hypersensitivity assay, for in
PT   vivo mapping of human T-lymphocyte epitope(s) e.g. for diagnosis,
PT   vaccine development etc
XX
PS   Disclosure; Page 10; 14pp; English.
XX
CC   Peptides AAW24221-6 from Escherichia coli may be used in the method
CC   of the invention which relates to the tracing of sources of infectious
CC   diseases. The method comprises preparing a short (9-50 amino acid)
CC   peptide containing at least one non-conserved epitope of an organism,
CC   injecting a composition containing the peptide intradermally into a test
CC   subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC   injection site at intervals for induration. The method allows the
CC   T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC   humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC   and treatment design for infectious disease exposure, active autoimmune
CC   disease, allergic diseases and malignancy. It is especially useful for
CC   tracing infectious diseases e.g HIV, particularly when a sequence is
CC   present only in certain strains of an organism, and developing suitable
CC   vaccines. Vaccinated individuals can also be tested to verify protection
CC   against a particular strain. The method allows in vivo mapping of
CC   T-lymphocyte epitopes, not previously possible. The method is simpler,
CC   more rapid and more sensitive. It can also be applied in a variety of
CC   environments e.g. undeveloped regions since specialist equipment is not
CC   required.
XX
SQ   Sequence   37 AA;

  Query Match             84.0%;  Score 42;  DB 18;  Length 37;
  Best Local Similarity   80.0%;  Pred. No. 0.27;
  Matches    8;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
            |:|| |||||
Db       26 ptaveltysp 35


RESULT  14
AAW17907
ID   AAW17907 standard; peptide; 37 AA.
XX
AC   AAW17907;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS4 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I  and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS4. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   37 AA;

  Query Match             84.0%;  Score 42;  DB 18;  Length 37;
  Best Local Similarity   80.0%;  Pred. No. 0.27;
  Matches    8;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
            |:|| |||||
Db       26 ptaveltysp 35


RESULT  15
AAW17913
ID   AAW17913 standard; peptide; 117 AA.
XX
AC   AAW17913;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS4 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
```

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XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4 CFA/I  and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS4. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4 CFA/I. Also antibodies raised
CC   against the E. coli CS4 CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   117 AA;

  Query Match             84.0%;  Score 42;  DB 18;  Length 117;
  Best Local Similarity   80.0%;  Pred. No. 0.98;
  Matches    8;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy        1 PSAVALTYSP 10
              |:|| |||||
Db       26 ptaveltysp 35


Search completed: March 12, 2002, 12:48:04
Job time: 924 sec
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